Project title: **NAS Web API: Web Services access to the Nonindigenous Aquatic Species Database**

CDI SSF Category 2: Computational Tools and Services (SSF2)

Southeast Ecological Science Center

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The goal of this project is to build a web service API to allow custom queries and uses of the Nonindigenous Aquatic Species Database.

PROJECT SUMMARY

The national Nonindigenous Aquatic Species (NAS) Database Program, which received the 2011 USGS Best Tool Award, serves as a repository for geo-referenced occurrence data on introduced aquatic organisms across the nation. The NAS Database includes over 150,000 occurrence records (increasing daily) from ~1000 introduced aquatic species, dating back to 1790. The NAS Program, including the database and website (http://nas.er.usgs.gov), has functioned for decades as a key resource for scientists, resource managers and the general public. This resource is well known as one of the premier sources of nonindigenous aquatic species occurrence data in the nation, and has been widely referenced in peer reviewed literature, agency reports, state and national management plans, news articles, other web sites, and outreach materials.

In its present form, occurrence data residing within the NAS database is accessible only through limited channels: directly through the NAS website (single occurrence records, species-specific distribution maps, and species-specific lists of occurrences), through larger distributed databases (e.g., GBIF, BISON), or by contacting NAS program staff to perform custom data queries. Although this provides structured, controlled access to the NAS database, consumption of NAS occurrence data is limited to the specific output formats provided the NAS Program (and partners), and only to customers who will use our data as-provided or are able and willing to contact NAS staff for custom data queries. Additionally, providing individual custom data services can occupy a significant portion of NAS program staff time, shifting them away from other important tasks such as data acquisition, entry, and/or quality control.

The goal of this project is to design, test, and implement a publically-accessible Web Services API to the NAS database for custom queries and data downloads. Development of a Web Services API will increase access to NAS occurrence data to a broader range of customers and allow for new integration and innovative uses of NAS data, such as incorporation into mobile sighting/reporting apps or combination with native species ranges or sighting, environmental layers (water/air temperatures, land cover, etc.), or other diverse data sets. Development of a Web Service API also closely aligns with the recently enacted Digital Government Strategy, which mandates the dissemination of government data through open channels and web APIs.

Datasets Used/Impacted/Exposed – USGS Nonindigenous Aquatic Species (NAS) Database

Context – this project will provide a new way of exposing and delivering custom occurrence data for nonindigenous aquatic organisms to the public and other customers, and allowing for integration with other information including climate or habitat data, or native species occurrence data.

Expected Products – The ultimate product of this project is a fully-functional web service API to the NAS Database. Secondary products include documentation for the API, available as part of the NAS website, and possibly a USGS press release.

Design will be done at SESC by NAS staff. Coding and implementation will be done by NWRC computer scientists and programmers.

SECTION 3. ESTIMATED BUDGET

Budget Category	**Federal Funding "Requested"**	**Matching Funds "Proposed"**
1. SALARIES (including Benefits):		
Personnel Total:	$6,845	
Contract Personnel Total:	$6,523	$6,064
Total Direct Costs:	$13,368	$6,064
Indirect Costs (%): (19.3-SESC/16.83-NWRC)	$1,995	$1,170
GRAND TOTAL:	**$15,363**	**$7,234** (47%)